

CLAIMS

1. A transfer system comprising:
an air conveyor;
a servo conveyor in cooperation with the air conveyor; and
a feeder in cooperation with the servo conveyor.
2. The system of claim 1, and further comprising a controller in communication with the servo conveyor and the fan feeder.
3. The system of claim 1 and further comprising a bagger in cooperation with the air conveyor.
4. The system of claim 1 and further comprising a cartoner in cooperation with the fan feeder
5. The system of claim 1, wherein the servo conveyor is comprised of multiple independent conveyor sections, each having variable speeds.
6. The system of claim 1, wherein the feeder includes a rotor having at least one blade to receive an article.
7. The system of claim 1, and further comprising a controller in operative control of the servo conveyor and the fan feeder.
8. The system of claim 7, and further comprising a plurality of sensors positioned on the air conveyor and the servo conveyor, and further comprising a controller in communication with the sensors.
9. A transfer system comprising:
an air conveyor;

a servo conveyor in cooperation with the air conveyor;
a feeder in cooperation with the servo conveyor;
a conveyor in cooperation with the feeder; and
a controller in communication with the servo conveyor and the feeder.

10. The transfer system of claim 9, and further comprising a plurality of sensors in communication with the controller and located on the air conveyor and servo conveyor to track movement of articles thereon, and wherein the controller adjusts the operation of the servo conveyor and the feeder in response to the position of the article.

11. The transfer system of claim 9, wherein the conveyor is a bucket conveyor having a plurality of buckets, and wherein the controller adjusts the operation of the servo conveyor and the feeder in response to the position of a particular bucket relative to the feeder.

12. The transfer system of claim 9, and further comprising a bagger system in cooperation with the air conveyor.

13. The system of claim 9, wherein the servo conveyor is comprised of multiple independent conveyor sections, each being separately controlled by the controller.

14. The system of claim 9, wherein the feeder includes a rotor having a blade to receive an article, and wherein rotation of the rotor is controlled by the controller.

15. A method of transferring articles between conveyor systems comprising:
- holding a first article on a first conveyor system
 - monitoring movement of the first article on the first conveyor system;
 - monitoring movement of a first position on a second conveyor system;
 - providing a feeder at a feeding location to transfer the first article from the first conveyor system to the first position on the second conveyor system; and
 - adjusting the speed of first conveyor system so that the first article arrives at the feeding location generally simultaneous to the first position.
16. The method of claim 15, and further comprising the additional step of determining the position of the first article relative to the feeding location.
17. The method of claim 16, and further comprising the additional step of determining the location of the first position relative to the feeding location.
18. The method of claim 17, and further comprising the additional step of calculating a speed adjustment to the first conveyor system so that the first article and first position reach the feeding position simultaneously.
19. The method of claim 15, wherein the first conveyor system includes an air conveyor and a servo conveyor.
20. The method of claim 19, wherein the feeder includes a rotor having at least one blade to receive an article.

21. The method of claim 20, wherein the second conveyor system includes a bucket conveyor, and wherein the first position is a bucket on the bucket conveyor.
22. The method of claim 21, wherein the step of adjusting the speed of first conveyor system includes the step of adjusting the speed of the servo conveyor.
23. A transfer system for packaged articles comprising:
- a bagger system;
 - an air conveyor in cooperation with the bagger system;
 - a servo conveyor in cooperation with the air conveyor;
 - a feeder in cooperation with the servo conveyor;
 - a cartoner system in cooperation with the feeder; and
 - a controller in communication with the servo conveyor, the feeder, and the cartoner system.
24. The system of claim 23, wherein the cartoner system includes a bucket conveyor, and further comprising means for determining position of a bucket in the bucket conveyor relative to the feeder.
25. The system of claim 23, and further comprising means for determining position of an item on the transfer system.
26. The system of claim 23, and further comprising a cartoner system in cooperation with the bucket conveyor.

27. The system of claim 23, wherein the controller includes a means for calculating the speed of the conveyor based on the length of the packaged article and its distance from feeder.

28. The system of claim 23, wherein the feeder includes a rotor having at least one blade to receive an article, and the controller includes a means for controlling the rotational speed of the rotor based on the number of blades and the location of a bucket relative to the feeder.

29. The system of claim 23, wherein the controller adjusts the operation of the servo conveyor in response to the position of a packaged article relative to the feeder.

30. The system of claim 23, wherein the controller adjusts the operation of the servo conveyor in response to the position of a bucket relative to the feeder.

31. A transfer system for cereal bags comprising:
a bagger system;
a cartoner system; and
a transfer system in cooperation with the bagger system and the cartoner system, the transfer system self adjusting to support asynchronous operation of the bagger system and the cartoner system.

32. A vertical feed operation comprising:
a vertical feed bagger system;
a conveyor in cooperation with the bagger system;
a cartoner system: and a

a transfer system in cooperation with the conveyor and the cartoner system, the transfer system self adjusting to support asynchronous operation of the bagger system and the cartoner system.

33. A conveyance system comprising a bagger system, a cartoner system, and a transfer system, wherein operation of the bagger system is uncoupled to operation of the cartoner system.